Department of Mechanical and Aerospace Engineering Approved "In Department" Technical Electives

			Aerospace		Mechanical		
Course	**Name**	**Requisites: PreReq, (CoReq) "C" (2.0) or better**	**Catalog Years**		**Catalog Year**	**Offered**	**Credits**
			2013-20	**2021 - 25**	**2013 - 25**		
BME 3211	Engineering Biomechanics	EGN 3310, EGN 3321, EGM 3601	√	√	√	FA	3
BME 3891	Intro. to Rehab Engineering	EGN 3310, EGN 3321	√	√	√	SP	3
EAS 3101	Fundamentals of Aerodynamics	EML 3701	R	R	√	All terms	3
EAS 3530	Space Systems Concepts	EGN 3321, PHY 2049C, MAP 2302	√	√	√	SP	3
EAS 4105	Flight Mechanics	EAS 3101, (EML 4225)	R	R	√	FA	3
EAS 4134	High-Speed Aerodynamics	EAS 3101	R	R	--	FA/SP	3
EAS 4200	Analysis and Design of Aero. Structures	EGM 3601	R	R	√	FA	3
EAS 4300	Aerothermodynamics of Prop. Systems	EAS 4134 or EML 4703	R	R	√	FA/SP	3
EAS 4505	Orbital Mechanics	MAC 2311, MAC 2312, MAC 2313, MAP 2302, PHY 2048C & EGN 3321	√	R	√	SP	3
EAS 4703	Small Satellite Payloads and Integration	EML 3303C or EAS 3800C	√	√	√	FA	3
EML 3022C	Intro to Computer Aided Engineering	EGN 3310	√	√	√	FA/SP	3
EML 3101	Thermodynamics of Mechanical Systems	EGN 3343, MAC 2311C, MAC 2312, MAC 2313, MAP 2302, PHY 2048C	√	√	√*	SP	3
EML 3262	Kinematics of Mechanisms	EGN 3321, MAC 2311, MAC 2312, MAC 2313, MAP 2302, PHY 2048C and EGN 3321	√	√	√	FA	3
EML 3500	Machine Design I	EGM 3601	√	√	R	All terms	3
EML 3811C	Mechatronics	EGN 3373 or EEL 3004	√	√	√	SP	3
EML 4024C	Engineering Design Practice (SolidWorks)	EML 3022C	√	√	√	FA/SP	3
EML 4142	Heat Transfer I	EML 3034C and EML 3701	R	√	R	All terms	3
EML 4143	Heat Transfer II	EML 4142	√	√	√*	FA	3
EML 4260	Dynamics of Machinery	EGN 3321, EML 3034C	√	√	√	Occasional	3
EML 4264	Vehicle Dynamics	EGN 3321, EML 4225	√	√	√	Occasional	3
EML 4313	Intermediate System Dynamics & Controls	EGN 3321, MAP 2302, EGN 3373, EML 4225	√	√	√*	FA	3
EML 4321	Manufacturing Proc. For Mech. Comp.	EGN 3365 or EMA 3706	√	√	√	SP	3
EML 4327	Digital Manufacturing	EGM 3601	√	√	√	FA	3
EML 4411	Mechanical Power Systems	EGN 3343	√	√	√	Occasional	3
EML 4454	Turbines for Sustainable Power	EGM 3601, EGN 3365 or EMA 3706, EML 3701 or EAS 3101, (EML 4142)	√	√	√	FA	3
EML 4504	Machine Design II	EML 3500	√	√	√*	SP	3
EML 4600	HVAC Systems Engineering I	EGN 3343	√	√	√	FA	3
EML 4703	Fluid Mechanics II	EML 3701	--	--	√*	FA	3

"C" (2.0) or better is required in all Prerequisite courses. Please verify your catalog year with your Academic Advisor before selecting technical electives.

KEY:

√: Acceptable for the major

R : Required Course

√*: Acceptable as Technical Elective **ONLY** if the Select 2 of 5 section is satisfied.

-- : Not acceptable for the major

Department of Mechanical and Aerospace Engineering Approved Graduate Technical Electives

Course	Name	Requisites: "B" or better PreReq, (CoReq),	All MAE Majors	Offered	Credits
BME 5216C	Mechanics of Biostructures I	Graduate Status/ C.I.	√	FA	3
BME 5217C	Mechanics of Biostructures II	BME 5216	√	SP	3
BME 5267	Biofluid Mechanics	MAP 2302, EML 3701, EML 4703	√	FA	3
EAS 5123	Intermediate Aerodynamics	EAS 4143, (EML 5060)	√	Occasional	3
EAS 5211	Aeroelasticity	EAS 3101/EML 3701, EAS 4210/EML 4220	√	Occasional	3
EAS 5315	Rocket Propulsion	EAS 4134/ EML 4703	√	Occasional	3
EEE 5332C	Thin Film Technology	EEE 3350/ Equivalent	√	Occasional	3
EEE 5352C	Semiconductor Material & Device Charac	EEE 3350/ C.I.	√	Odd FA	3
EEE 5356C	Fabrication of Solid-State Devices	EEE 3350	√	FA/ SP	4
EEE 5378	CMOS Analog and Digital Circuit Design	EEE 4309C	√	FA	3
EEE 5513	Digital Signal Processing Applications	EEL 4750	√	SP	3
EEE 5542	Random Processes I	EEL 3552C, STA 3032	√	FA/ SP	3
EEE 5557	Introduction to Radar Systems	EEL 3552C	√	SP	3
EEL 5173	Linear Systems Theory	EEL 3657	√	SP	3
EEL 5245C	Power Electronics	EEE 4309C	√	FA	3
EEL 5437C	Microwave Engineering	EEL 3470/ C.I.	√	FA	4
EEL 5462C	Antenna Analysis and Design	EEL 3470/ Equivalent	√	Odd FA	3
EEL 5630	Digital Control Systems	EEL 3657	√	FA	3
EEL 5669	Autonomous Robotic Systems	EEL 5173/ C.I.	√	Odd FA	3
EEL 5722C	Field-Programmable Gate Array	EEE 3342C	√	Even FA	3
EIN 5108	Environment of Technical Organizations	Graduate Status/ C.I.	√	FA	3
EIN 5117	Management Information Systems I	C.I.	√	SP	3
EIN 5140	Project Engineering	Graduate Status/ C.I.	√	FA/SP	3
EIN 5248C	Ergonomics	C.I.	√	FA	3
EIN 5251	Usability Engineering	STA 3032/ Equivalent	√	SP	3
EIN 5346	Engineering Logistics	ESI 5306/ ESI 4312	√	Occasional	3
EMA 5060	Polymer Science and Engineering	EGN 3365	√	Occasional	3
EMA 5104	Intermediate Structures & Prop. of Matls	EGN 3365	√	FA	3
EMA 5106	Metallurgical Thermodynamics	EGN 3365	√	Occasional	3
EMA 5140	Introduction to Ceramic Materials	EGN 3365	√	Occasional	3
EMA 5317	Materials Kinetics	C.I.	√	Occasional	3
EMA 5584	Biomaterials	EGN 3365	√	Even SP	3
EMA 5610	Laser Materials Processing	EGN 3343/ EMA 5106 / C.I.	√	Occasional	3
EML 5060	Mathematical Methods in MAE	MAP 2302	√	FA	3
EML 5152	Intermediate Heat Transfer	EML 4142, EML 5060	√	Occasional	3
EML5228C	Modal Analysis	EML 3303C, EML 5060	√	Occasional	3
EML 5237	Intermediate Mechanics of Materials	EML 3500/ EAS 4200, EML 5060	√	FA	3
EML 5271	Intermediate Dynamics	EGN 3321/ EML 3217	√	Occasional	3
EML 5290	Intro to MEMS and Micromachining	Graduate Status/ C.I.	√	Odd FA	3
EML 5311	System Control	EML 4225C, (EML 5060)	√	Occasional	3
EML 5402	Turbomachinery	EML3101, EML 4703/ EAS 4134	√	Occasional	3
EML 5456	Turbines for Sustainable Power	EML 5237	√	FA	3
EML 5546	Engineering Design with Composite Mtls	EML 5237	√	Occasional	3
EML 5713	Intermediate Fluid Mechanics	EML 4703, (EML 5060)	√	Occasional	3

Graduate Tuition and Fees will apply (GPA ≥ 3.0 Required).

Undergraduate Students will need an Override to enroll in these courses.

Please see the department associate chair for approval of courses not on this list.

Updated on 6/19/2024